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<110> Reinhard Ebner
Steven M. Ruben

<120> INTERLEUKINS-21 AND 22

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<141> 1999-05-27

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<151> 1998-09-10

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gcc gag tgc ctg tgc aga ggc tgt atc gat gca cgg acg ggc cgc gag 97
Ala Glu Cys Leu Cys Arg Gly Cys Ile Asp Ala Arg Thr Gly Arg Glu
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aca gct gcg ctc aac tcc gtg cgg ctg ctc cag agc ctg ctg gtg ctg 145
Thr Ala Ala Leu Asn Ser Val Arg Leu Leu Gln Ser Leu Leu Val Leu
35 40 45

cgc cgc cgg ccc tgc tcc cgc gac ggc tcg ggg ctc ccc aca cct ggg 193
Arg Arg Arg Pro Cys Ser Arg Asp Gly Ser Gly Leu Pro Thr Pro Gly
50 55 60

gcc ttt gcc ttc cac acc gag ttc atc cac gtc ccc gtc ggc tgc acc 241
Ala Phe Ala Phe His Thr Glu Phe Ile His Val Pro Val Gly Cys Thr
65 70 75 80

tgc gtg ctg ccc cgt tca gtg tgaccgccaa ggccgtgggg cccttagact 292
Cys Val Leu Pro Arg Ser Val
85

ggacacgtgt gctccccaga gggcaccccc tatttatgtg tatttattgt tatttatatg 352

cctcccccaa cactaccctt ggggtctggg cattccccgt gtctggagga cagcccccca 412

ctgttctcct catctccagc ctcagtagtt gggggtwgaa ggagctcagc acctcttcca 472

gcccttaaag ctgcagaaaa ggtgtcacac ggctgcctgt accttggytc cctgtcctgc 532

tcccggcttc ccttacccta tcactggcct caggcccccg caggctgcct cttcccaacc 592

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Leu Gln Leu Gly Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala
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ggg ggc agg ccc gcc gac cgc cgc ttc cgg ccg ccc acc aac ctg cgc 143
Gly Gly Arg Pro Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg
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Ser Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr
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ccc agg tac ctg cct gaa gcc tac tgc ctg tgc cgg ggc tgc ctg acc 239

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Gly Leu Phe Gly Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr
 80                  85                  90                  95

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Met Pro Thr Val Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg
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tcc gtc tac acc gag gcc tac gtc acc atc ccc gtg ggc tgc acc tgc   383
Ser Val Tyr Thr Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys
            115                 120                 125

gtc ccc gag ccg gag aag gac gca gac agc atc aac tcc agc atc gac   431
Val Pro Glu Pro Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp
        130                 135                 140

aaa cag ggc gcc aag ctc ctg ctg ggc ccc aac gac gcg ccc gct ggc   479
Lys Gln Gly Ala Lys Leu Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly
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ccc tgaggccggt cctgccccgg gaggtctccc cggcccgcat cccgaggcgc        532
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Gly Arg Pro Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser
         35                  40                  45

Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro
     50                  55                  60

Arg Tyr Leu Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly
 65                  70                  75                  80

Leu Phe Gly Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met
                 85                  90                  95

Pro Thr Val Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser
            100                 105                 110

Val Tyr Thr Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val
        115                 120                 125

Pro Glu Pro Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys
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Cys Pro Asn Ser Glu Asp Lys Asn Phe Pro Arg Thr Val Met Val Asn
         35                  40                  45

Leu Asn Ile His Asn Arg Asn Thr Asn Thr Asn Pro Lys Arg Ser Ser
     50                  55                  60

Asp Tyr Tyr Asn Arg Ser Thr Ser Pro Trp Asn Leu His Arg Asn Glu
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Asp Pro Glu Arg Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg His
                 85                  90                  95
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Leu Gly Cys Ile Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser
            100                 105                 110

Val Pro Ile Gln Gln Glu Ile Leu Val Leu Arg Arg Glu Pro Pro His
        115                 120                 125

Cys Pro Asn Ser Phe Arg Leu Glu Lys Ile Leu Val Ser Val Gly Cys
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Thr Cys Val Thr Pro Ile Val His His Val Ala
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Ser Ala Cys Pro Asn Thr Glu Ala Lys Asp Phe Leu Gln Asn Val Lys
         35                  40                  45

Val Asn Leu Lys Val Phe Asn Ser Leu Gly Ala Lys Val Ser Ser Arg
     50                  55                  60

Arg Pro Ser Asp Tyr Leu Asn Arg Ser Thr Ser Pro Trp Thr Leu His
 65                  70                  75                  80

Arg Asn Glu Asp Pro Asp Arg Tyr Pro Ser Val Ile Trp Glu Ala Gln
                 85                  90                  95

Cys Arg His Gln Arg Cys Val Asn Ala Glu Gly Lys Leu Asp His His
            100                 105                 110

Met Asn Ser Val Leu Ile Gln Gln Glu Ile Leu Val Leu Lys Arg Glu
        115                 120                 125

Pro Glu Ser Cys Pro Phe Thr Phe Arg Val Glu Lys Met Leu Val Gly
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Val Gly Cys Thr Cys Val Ala Ser Ile Val Arg Gln Ala Ala
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Arg Ser Thr Ser Pro Trp Thr Leu His Arg Asn Glu Asp Gln Asp Arg
 65                  70                  75                  80

Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg Tyr Leu Gly Cys Val
                 85                  90                  95

Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser Val Pro Ile Gln
            100                 105                 110

Gln Glu Ile Leu Val Val Arg Lys Gly His Gln Pro Cys Pro Asn Ser
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Phe Arg Leu Glu Lys Met Leu Val Thr Val Gly Cys Thr Cys Val Thr
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Pro Ile Val His Asn Val Asp
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Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp
        35                  40                  45

Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg
    50                  55                  60

Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala
 65                  70                  75                  80

Gln Arg Lys Cys Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg
                 85                  90                  95

Ser Leu Ser Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile
            100                 105                 110

Pro Val Asp Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn
        115                 120                 125

Pro Phe Thr Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe
    130                 135                 140

Ser Gln Val Pro Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr
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Gly Pro Cys Arg Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys
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tctcccggac tcctgaggtc acatgcgtgg tggtggacgt aagccacgaa gaccctgagg 180

tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240

aggagcagta caacagcacg taccgtgtgg tcagcgtcct caccgtcctg caccaggact 300

ggctgaatgg caaggagtac aagtgcaagg tctccaacaa agccctccca acccccatcg 360

agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420

catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct 480

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ccacgcctcc cgtgctggac tccgacggct ccttcttcct ctacagcaag ctcaccgtgg 600

acaagagcag gtggcagcag gggaacgtct tctcatgctc cgtgatgcat gaggctctgc 660

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cccgaaatat ctgccatctc aattag 86

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gcccctaact ccgcccagtt ccgcccattc tccgccccat ggctgactaa ttttttttat 180

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cagttccgcc cattctccgc cccatggctg actaattttt tttatttatg cagaggccga 180

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ttgaatagag gcagagctta ttttatatta tccaaatgag agctactctg ttnacatttt 300

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tttttagtta caagcaagca nntggnttga agtngntggg gaaaggancc gnagggattc 360

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<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (150)

<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (164)
<223> n equals a, t, g or c

<400> 26
ccttcagcaa gcctctttta atgatttaaa aaagaacttc taacttttac aaataattgt 60

gttcagagac agactttcaa tctaaagaaa agatcaaggn cctagctctn gtggcagaat 120

gcagaaacag aagccnccag atnganctcn gcagatgcta acgnggccca ctttgtcc 178

<210> 27
<211> 264
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (23)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (131)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (188)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (228)
<223> n equals a, t, g or c

<400> 27
ggcagagcca agctcctgct ggngccccaa cgacgcgccc gctggcccct aaggccggtt 60

cctgccccgg aaggtctccc cggcccgcat cccgaggcgc ccaagctgga gccgcctgga 120

gggcttcggt ncggcgaacc tctgaaagag aagtgccacc gagcaaacca agtgccggta 180

gcaccagngc cgcctttcca tggagactcg taagcagctt catctganac gggaatccct 240

ggtttgcttt tagctacaag caag 264

<210> 28
<211> 1067
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (34)..(624)

<400> 28
gctccaagcc cagcctgccc cgctgccgcc acc atg acg ctc ctc ccc ggc ctc 54

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                                                Met Thr Leu Leu Pro Gly Leu
                                                  1               5

ctg ttt ctg acc tgg ctg cac aca tgc ctg gcc cac cat gac ccc tcc   102
Leu Phe Leu Thr Trp Leu His Thr Cys Leu Ala His His Asp Pro Ser
          10                  15                  20

ctc agg ggg cac ccc cac agt cac ggt acc cca cac tgc tac tcg gct   150
Leu Arg Gly His Pro His Ser His Gly Thr Pro His Cys Tyr Ser Ala
      25                  30                  35

gag gaa ctg ccc ctc ggc cag gcc ccc cca cac ctg ctg gct cga ggt   198
Glu Glu Leu Pro Leu Gly Gln Ala Pro Pro His Leu Leu Ala Arg Gly
 40                  45                  50                  55

gcc aag tgg ggg cag gct ttg cct gta gcc ctg gtg tcc agc ctg gag   246
Ala Lys Trp Gly Gln Ala Leu Pro Val Ala Leu Val Ser Ser Leu Glu
                 60                  65                  70

gca gca agc cac agg ggg agg cac gag agg ccc tca gct acg acc cag   294
Ala Ala Ser His Arg Gly Arg His Glu Arg Pro Ser Ala Thr Thr Gln
             75                  80                  85

tgc ccg gtg ctg cgg ccg gag gag gtg ttg gag gca gac acc cac cag   342
Cys Pro Val Leu Arg Pro Glu Glu Val Leu Glu Ala Asp Thr His Gln
          90                  95                 100

cgc tcc atc tca ccc tgg aga tac cgg gtg gac acg gat gag gac cgc   390
Arg Ser Ile Ser Pro Trp Arg Tyr Arg Val Asp Thr Asp Glu Asp Arg
     105                 110                 115

tat cca cag aag ctg gcc ttc gcc gag tgc ctg tgc aga ggc tgt atc   438
Tyr Pro Gln Lys Leu Ala Phe Ala Glu Cys Leu Cys Arg Gly Cys Ile
120                 125                 130                 135

gat gca cgg acg ggc cgc gag aca gct gcg ctc aac tcc gtg cgg ctg   486
Asp Ala Arg Thr Gly Arg Glu Thr Ala Ala Leu Asn Ser Val Arg Leu
                140                 145                 150

ctc cag agc ctg ctg gtg ctg cgc cgc cgg ccc tgc tcc cgc gac ggc   534
Leu Gln Ser Leu Leu Val Leu Arg Arg Arg Pro Cys Ser Arg Asp Gly
            155                 160                 165

tcg ggg ctc ccc aca cct ggg gcc ttt gcc ttc cac acc gag ttc atc   582
Ser Gly Leu Pro Thr Pro Gly Ala Phe Ala Phe His Thr Glu Phe Ile
        170                 175                 180

cac gtc ccc gtc ggc tgc acc tgc gtg ctg ccc cgt tca gtg           624
His Val Pro Val Gly Cys Thr Cys Val Leu Pro Arg Ser Val
    185                 190                 195

tgaccgccaa ggccgtgggg cccttagact ggacacgtgt gctccccaga gggcaccccc 684

tatttatgtg tatttattgt tatttatatg cctcccccaa cactaccctt ggggtctggg 744

cattccccgt gtctggagga cagcccccca ctgttctcct catctccagc ctcagtagtt 804

gggggtwgaa ggagctcagc acctcttcca gcccttaaag ctgcagaaaa ggtgtcacac 864

ggctgcctgt accttggytc cctgtcctgc tcccggcttc ccttacccta tcactggcct 924

caggcccccg caggctgcct cttcccaacc tccttggaag taccccctgtt tcttaaacaa 984
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ttatttaagt gtacgtgtat tattaaactg atgaacacaa aaaaaaaaaa aaaaaaaaaa 1044

aaaaaaaaaa aaaaaaaaaa aaa 1067

<210> 29
<211> 197
<212> PRT
<213> Homo sapiens

<400> 29

Met	Thr	Leu	Leu	Pro	Gly	Leu	Leu	Phe	Leu	Thr	Trp	Leu	His	Thr	Cys
1				5				10					15		
Leu	Ala	His	His	Asp	Pro	Ser	Leu	Arg	Gly	His	Pro	His	Ser	His	Gly
		20					25					30			
Thr	Pro	His	Cys	Tyr	Ser	Ala	Glu	Glu	Leu	Pro	Leu	Gly	Gln	Ala	Pro
	35					40					45				
Pro	His	Leu	Leu	Ala	Arg	Gly	Ala	Lys	Trp	Gly	Gln	Ala	Leu	Pro	Val
50					55					60					
Ala	Leu	Val	Ser	Ser	Leu	Glu	Ala	Ala	Ser	His	Arg	Gly	Arg	His	Glu
65				70					75					80	
Arg	Pro	Ser	Ala	Thr	Thr	Gln	Cys	Pro	Val	Leu	Arg	Pro	Glu	Glu	Val
			85					90					95		
Leu	Glu	Ala	Asp	Thr	His	Gln	Arg	Ser	Ile	Ser	Pro	Trp	Arg	Tyr	Arg
		100					105					110			
Val	Asp	Thr	Asp	Glu	Asp	Arg	Tyr	Pro	Gln	Lys	Leu	Ala	Phe	Ala	Glu
	115					120					125				
Cys	Leu	Cys	Arg	Gly	Cys	Ile	Asp	Ala	Arg	Thr	Gly	Arg	Glu	Thr	Ala
130					135					140					
Ala	Leu	Asn	Ser	Val	Arg	Leu	Leu	Gln	Ser	Leu	Leu	Val	Leu	Arg	Arg
145				150					155					160	
Arg	Pro	Cys	Ser	Arg	Asp	Gly	Ser	Gly	Leu	Pro	Thr	Pro	Gly	Ala	Phe
			165					170					175		
Ala	Phe	His	Thr	Glu	Phe	Ile	His	Val	Pro	Val	Gly	Cys	Thr	Cys	Val
		180					185					190			
Leu	Pro	Arg	Ser	Val											
	195														

<210> 30
<211> 332
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (162)
<223> n equals a, t, g or c

<220>
<221> misc_feature

<222> (194)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (214)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (260)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (277)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (290)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (305)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (314)
<223> n equals a, t, g or c

<400> 30
tggacacgta tgaggaccgc tatccacaga agctggcctt cgccgagtgc ctgtgcagag 60

gctgtatcga tgcacggacg ggccgcgaga cagctgcgct caactccgtg cggctgctcc 120

agagcctgac tggtgctgcg ccgccggccc tgactacccg cnacggacta cgggggctac 180

cccacacctg gggnccttg accttccaca ccgnagttac atgccacgta ccccgttcgg 240

gctgtcacct gacgtgctgn ccccgtttac agtgtgnacc gaccgtaggn ccgtggggtc 300

ccctnagtac tggnacacgt gtgatacccc ag 332

<210> 31
<211> 522
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(522)

<400> 31
ggc tgc gcg gac cgg ccg gag gag cta ctg gag cag ctg tac ggg cgc 48
Gly Cys Ala Asp Arg Pro Glu Glu Leu Leu Glu Gln Leu Tyr Gly Arg
1 5 10 15

ctg gcg gcc ggc gtg ctc agt gcc ttc cac cac acg ctg cag ctg ggg 96
Leu Ala Ala Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly

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            20                  25                  30

ccg cgt gag cag gcg cgc aac gcg agc tgc ccg gca ggg ggc agg ccc   144
Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro
         35                  40                  45

gcc gac cgc cgc ttc cgg ccg ccc acc aac ctg cgc agc gtg tcg ccc   192
Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro
     50                  55                  60

tgg gcc tac aga atc tcc tac gac ccg gcg agg tac ccc agg tac ctg   240
Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu
 65                  70                  75                  80

cct gaa gcc tac tgc ctg tgc cgg ggc tgc ctg acc ggg ctg ttc ggc   288
Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly
                 85                  90                  95

gag gag gac gtg cgc ttc cgc agc gcc cct gtc tac atg ccc acc gtc   336
Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val
            100                 105                 110

gtc ctg cgc cgc acc ccc gcc tgc gcc ggc ggc cgt tcc gtc tac acc   384
Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr
        115                 120                 125

gag gcc tac gtc acc atc ccc gtg ggc tgc acc tgc gtc ccc gag ccg   432
Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro
    130                 135                 140

gag aag gac gca gac agc atc aac tcc agc atc gac aaa cag ggc gcc   480
Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala
145                 150                 155                 160

aag ctc ctg ctg ggc ccc aac gac gcg ccc gct ggc ccc tga           522
Lys Leu Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
                165                 170
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<210> 32
<211> 173
<212> PRT
<213> Homo sapiens

<400> 32

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Gly Cys Ala Asp Arg Pro Glu Glu Leu Leu Glu Gln Leu Tyr Gly Arg
  1               5                  10                  15

Leu Ala Ala Gly Val Leu Ser Ala Phe His His Thr Leu Gln Leu Gly
            20                  25                  30

Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro
         35                  40                  45

Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro
     50                  55                  60

Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu
 65                  70                  75                  80

Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly
                 85                  90                  95
```

```
Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val
            100                 105                 110

Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr
        115                 120                 125

Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro
    130                 135                 140

Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys Gln Gly Ala
145                 150                 155                 160

Lys Leu Leu Leu Gly Pro Asn Asp Ala Pro Ala Gly Pro
                165                 170
```